

temperature and pressure changes are also considered and the usual formulæ deduced. Then follows, in lecture v., the investigation to a first approximation of mixtures of two fluids, leading to the discussion of fusion and solubility curves. Finally, in lecture vi., vaporisation curves and the theory of the galvanic cell fall to be considered. The same fundamental method is used throughout, the thermodynamic potential being first formulated, and then by differentiation the quantity known as the molecular potential. Detailed examples elucidate the method; and there is no doubt that (to paraphrase his own words) the author has demonstrated, not only the great use of the thermodynamic potential, but also the ease with which it can be manipulated. Dr. van Laar has placed in the hands of the student of thermodynamics a well-written and serviceable pamphlet.

The Family. By Helen Bosanquet. Pp. vii+344. (London: Macmillan and Co., Ltd., 1906.) Price 8s. 6d. net.

THE "Family" is a subject of far greater extent than most persons may think. Its importance to society is enormous, though, like the air we breathe, it attracts little attention. The variety in the constitution of family life in different places and at different times is extraordinary. Its peculiarity in any given case is the result of many influences, including long-standing tradition, economic causes, natural instincts, and legislation on succession of property. The author has given a valuable *résumé* of facts and opinions derived from more than thirty writers of note, and she has blended them into a pleasant and readable volume which will open out new and wide vistas of interest to most of those who study it. She says that the history of the Family "is a great work waiting for a great scholar." It is no disparagement to this book to add that she speaks truly; only it seems to the writer of this notice that a still more important requisite than scholarship is a more enlightened statistical treatment of the subject than it has for the most part yet received.

One of the many of these desiderata is an exact analysis of the effects of different forms of the Family on the eventual well-being of the race. These have a strong influence on the marriages or on the celibacy of its members. The influence of the Family inclusive of religion, in France, is such that in the year 1900, as stated, no less than sixty-four thousand women were immured for life within convent walls. Some forms of family life may be found to exert a considerable eugenic effect on the nation, others the contrary; how far has yet to be investigated. In the view of the author the power of the Family is not decaying in England. She thinks it has developed in a changed direction, through replacing a slavish submission to the head of the family by feelings of willing loyalty. The proved habit of the artisan class to contribute to the well-being of the Family is to her an evidence of the strength of the bonds that still unite its members. In conclusion, it should be said that this volume contains occasional passages of rare eloquence, such as those in p. 160 and onwards, on the very real and spiritual entity of the Family. F. G.

The Evolution of Man: a Popular Scientific Study. By Ernst Haeckel. Translated from the fifth (enlarged) edition by Joseph McCabe. Two vols. in one. Pp. xiv+364. (London: Watts and Co., 1906.) Price 2s. net.

A TRANSLATION of the fifth edition of Haeckel's famous book is now procurable for two shillings! It is true that the text has been somewhat condensed, and that the beautiful plates of the complete edition have had

to be omitted, but the gist of the matter is here, and is illustrated by more than four hundred figures. Moreover, a library edition of the complete work is also available to English readers. As is well known, the first half of the book contains a general account of the development of vertebrates, and of man in particular, while the second half discusses the chief phyletic stages from protists to man, and the gradually increasing differentiation of the various organs and systems. There is a great deal of embryology and comparative anatomy in the book, but there is very little ætiology, and the English title "The Evolution of Man" is rather misleading. The original title was "Anthropogenie." Many parts of the book, e.g. those dealing with the development of the foetal membranes and of the excretory system, are very technical and difficult; serious students of biology will find these intricate subjects more clearly discussed elsewhere, and we do not think that other readers will understand them. The translation bristles with mistakes, some of which show that even the translator has not always understood his text. The kind of mistake we allude to is translating "Rest der Chorda" as "rest of the chorda," and "Zungenbogen" as "hyaloid bone."

Untravelled England. By James John Hissey. Pp. xviii+459. (London: Macmillan and Co., Ltd., 1906.) Price 16s.

THE author describes how he set forth in search of unfrequented spots in his own country, and goes on to provide a pleasing and quietly entertaining account of the out-of-the-way places he visited. The start from Eastbourne in a motor car does not, it must be confessed, encourage the reader to expect much in the way of romance; but the motor car, because of its persistently satisfactory conduct, does not obtrude itself into the narrative. There is no attempt at "fine" writing, yet the author succeeds in maintaining the reader's interest in the English and Welsh villages passed through, and in conveying a pleasing impression of the characters of the natives encountered. The volume is illustrated by twenty-four half-tone reproductions from photographs taken by Mr. Hissey on the journey.

LETTERS TO THE EDITOR.

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A Japanese Singing Kettle.

THE town of Morioka is well known for the manufacture of the iron kettle which is indispensable in every Japanese household. There exist numerous forms of kettle; several dozen shapes may be counted in a single shop, but the most frequently occurring forms are cylindrical, pear-shaped, and spherical. The kettle is used for boiling water by means of charcoal fire for making tea. On approaching boiling point, some of these kettles begin to sing with quavering sound, which is a combination of different notes, peculiar to the form and size of the kettle.

There are several arrangements for producing sound, of which the following will indicate the manner in which the vibrations are produced. Inside the kettle, the bottom is nearly flat. On this four pieces of sheet iron, 15 mm. sq. and 0.4 mm. thick, are glued by means of Japan lac (*urushi*), which can well withstand the temperature of boiling water. Between the bottom and the plates is an air space nearly $\frac{1}{2}$ mm. thick. The plates are nearly in a plane, and almost touch each other, leaving thin slits between them. When the kettle is full the cell is under the water, and some air remains in the cell between the

